

2009 Summer Intern

Francisco Trey Martinez



King County

Department of
Natural Resources and Parks

Overview

- Who I am
- What I did
 - How I did it
 - Field Trips
 - Projects
- What I learned
- Acknowledgements
- Conclusion/Questions



Francisco (Kiko) Martinez



- Drafting/Designer Intern
- Renton, WA
- Baseball, Art, & Outdoor Activities
- Renton Technical College
 - Engineering Design Technology
 - AAS/Certificate
- Mentor: Velma Criollos

Draw lines and circles...



What I did

How I did it

- AutoCAD
- Hard Work
- Help from Velma and other fellow designers
- Comments from Engineers and other project team members.



Field Trips

- West Point Treatment Plant
 - Plant Tour
 - Interns
- South Treatment Plant
 - Installation of Truck Wash Project
 - John Abdalkani & Velma Criollos
- Carnation Treatment Plant
 - Heat Tracing & Insulating Pipes Project
 - Jeff Lundt & Clay Wood
- North Creek Force Mains
 - Air Jumper Replacement Project
 - Mike Tseng & Will Sroufe
- Woodinville Pump Station
 - Bothell/Woodinville Interceptor Rehabilitation Project
 - Sarah White, Bob Isaac, & Crystal Fleet

Project Name: South Treatment Plant Truck Wash

Project Number: 423619/694

Project Manager: Will Sroufe

Project Engineer: John Abdalkani

Project Description:

- This project will design and install an automatic truck wash system at the South Treatment Plant (STP). As part of the STP Centrifuge project, an extension of the dewatering building was constructed to provide a bay for a future truck wash. This project will complete the truck wash.

Project Objective:

- Design and construct an automatic truck undercarriage and side body wash system.
- Stay within budget.
- Provide a quick, thorough method of cleaning the biosolids trucks.
- Meet operations and maintenance requirements.

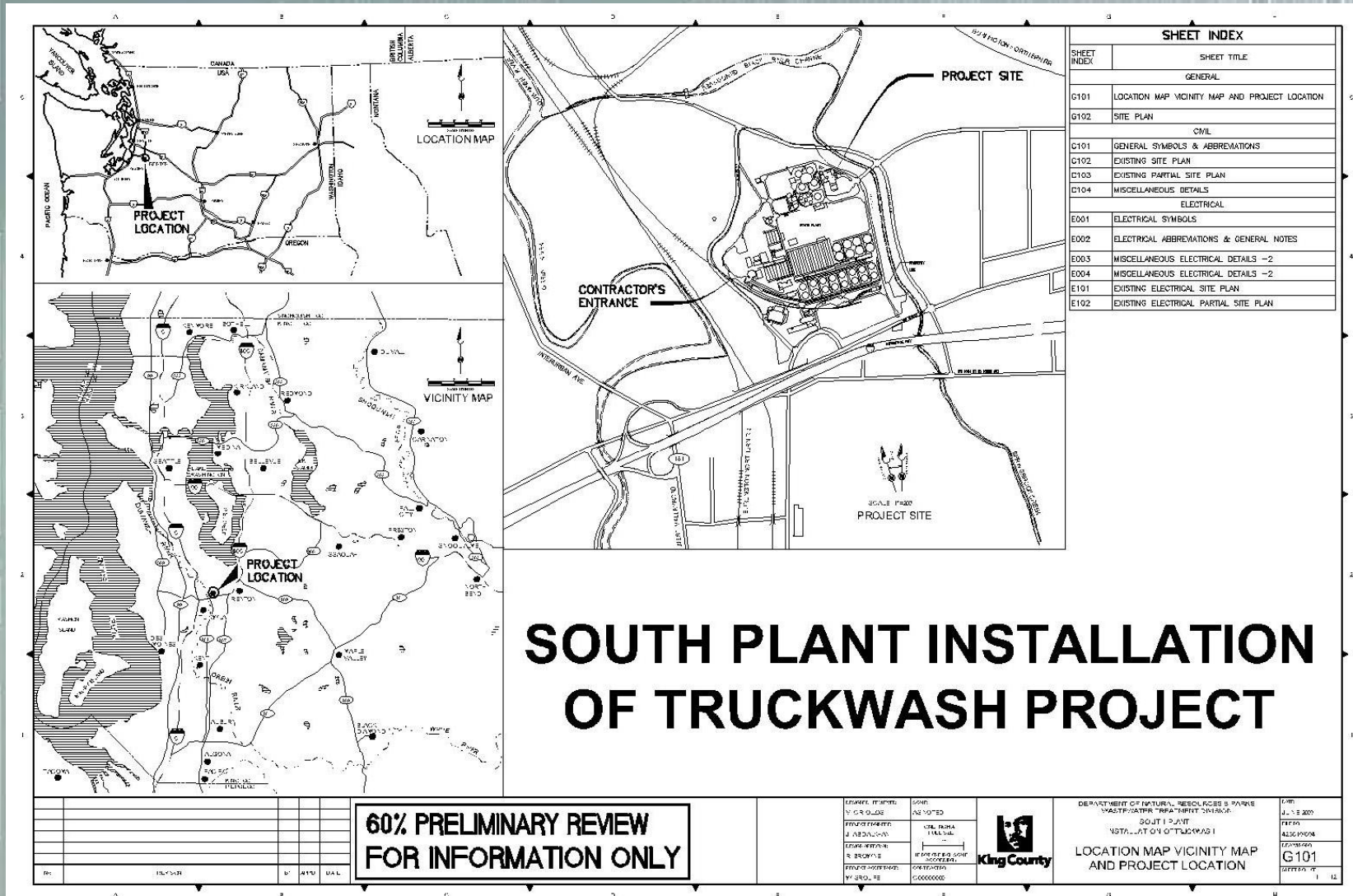
STP Truck Wash



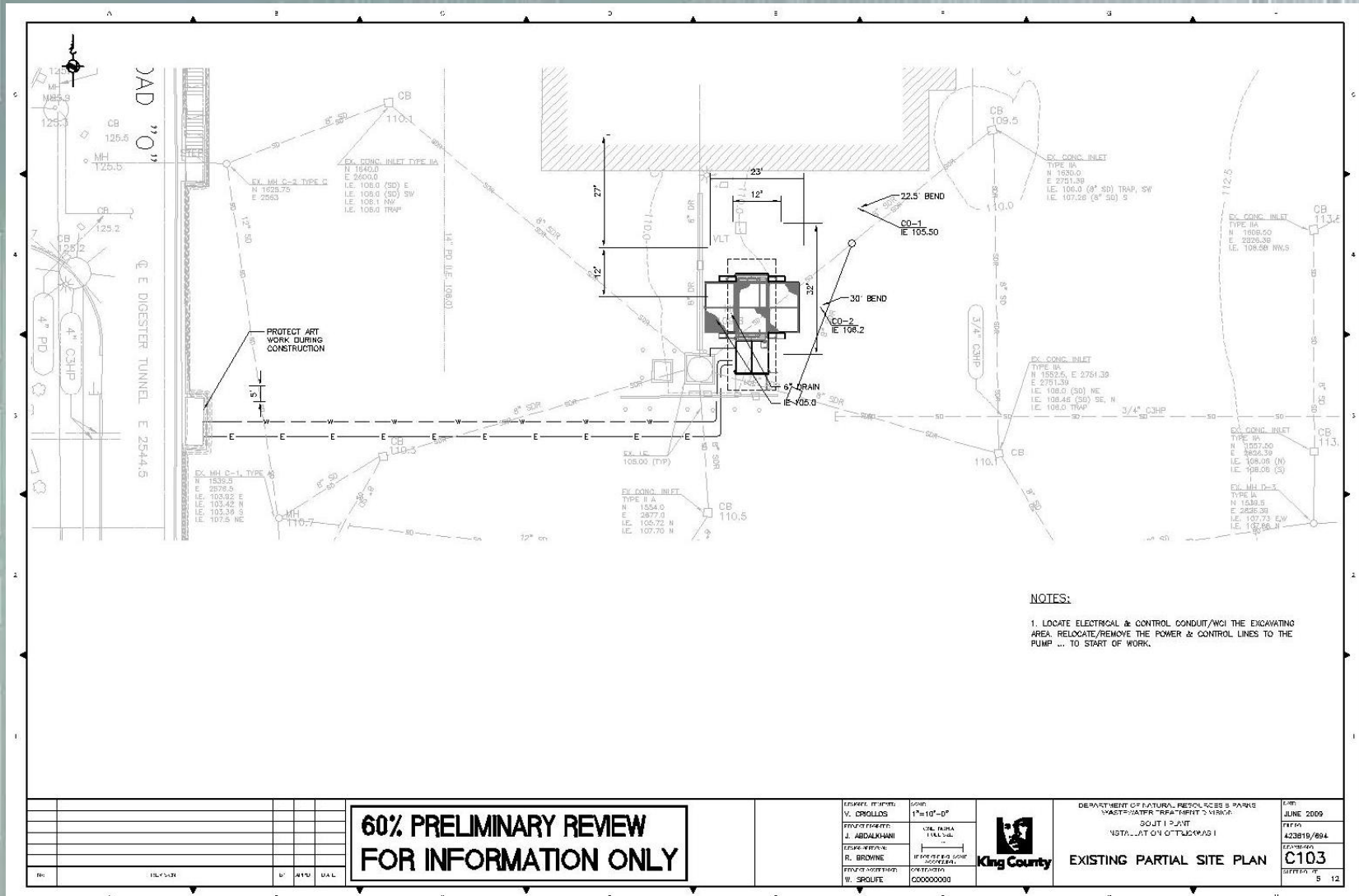
STP Truck Wash



STP Truck Wash



STP Truck Wash



IN AREAS WITH ASPHALT CONCRETE PAVEMENT, SEE ASPHALT CONCRETE PAVEMENT REPLACEMENT DETAIL (B)

STANDARD TRENCH
DETAIL (A)
SCALE: NOT TO SCALE

EXTENDIBLE CLEANOUT CONNECTION
DETAIL (C)
SCALE: NOT TO SCALE

ASPHALT CONCRETE PAVEMENT REPLACEMENT
DETAIL (B)
SCALE: NOT TO SCALE

SD INSERT NOTES:

- STORM DRAIN INLET INSERTS NEED TO BE REMOVED AT THE END OF THE JOB.
- STORM DRAIN INSERTS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURER'S RECOMMENDATIONS. CATCH BASIN INSERTS ARE NOT TO BE INSTALLED IN CURB INLETS.
- INSERTS SHALL BE INSPECTED AND MAINTAINED WHEN A 1/2 INCH RAIN ACCUMULATES WITHIN A 24 HOUR PERIOD. CLEAN AND/OR REPLACE INSERT WHEN HALF OF THE TRAP IS FILLED WITH SEDIMENTS.

STORM DRAIN INLET (INSERT)
DETAIL (D)
SCALE: NOT TO SCALE

STORM DRAIN INLET (INSERT)
DETAIL (E)
SCALE: NOT TO SCALE

STORM DRAIN INLET (INSERT)
DETAIL (F)
SCALE: NOT TO SCALE

GRAVITY VERTICAL THRUST BLOCK
DETAIL (E)
SCALE: NOT TO SCALE

NORMAL VERTICAL THRUST BLOCK
DETAIL (F)
SCALE: NOT TO SCALE

GATE VALVE INSTALLATION
DETAIL (G)
SCALE: NOT TO SCALE

STANDARD TRENCH

CLASS B BACK FILL

12 INCH

12 INCH

12 INCH

40 INCH

14 INCH DODGE TYPING W/TE TOP TO TOP OF PIPE

12 INCH

12 INCH

EXTENDIBLE CLEANOUT CONNECTION

COVER TO BE STAMPED "SD"

THREADED BARS OR PVC PLUG AND FEMALE ADAPTER

3/4 INCH

8 INCH MIN.

8 INCH THICK CONCRETE BASE 3'-0" SQ. MIN.

5 INCH MIN. TYP.

3000 PSI CONCRETE

45 WYE BRANCH

PIPE LENGTH VARIES

45° ELBOW

EXISTING 8" STORM DRAIN

FLOW

FOR TRENCH DETAIL SEE

ASPHALT CONCRETE PAVEMENT REPLACEMENT

6" ASPHALT CONCRETE, OR MATCH EXISTING ASPHALT DEPTH, WHICH EVER IS GREATER

4" CRUSHED SURFACING TOP COURSE (TYPE R FILL)

6" CRUSHED ROCK BASE EXISTING PAVEMENT & BASE

SD INSERT NOTES:

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STORM DRAIN INLET INSERT

PRE-MANUFACTURED CATCH BASIN OR INLET INSERT

OVERFLOW (TO BYPASS PEAK STORM VOLUMES)

GRAVITY VERTICAL THRUST BLOCK

12 INCH MIN. DIA.

12 INCH MIN. DIA.

12 INCH MIN. DIA.

NORMAL VERTICAL THRUST BLOCK

12 INCH MIN. DIA.

12 INCH MIN. DIA.

12 INCH MIN. DIA.

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FLOW

FOR TRENCH DETAIL SEE

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6" ASPHALT CONCRETE, OR MATCH EXISTING ASPHALT DEPTH, WHICH EVER IS GREATER

4" CRUSHED SURFACING TOP COURSE (TYPE R FILL)

6" CRUSHED ROCK BASE EXISTING PAVEMENT & BASE

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FLOW

FOR TRENCH DETAIL SEE

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6" CRUSHED ROCK BASE EXISTING PAVEMENT & BASE

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GATE VALVE INSTALLATION

12 INCH MIN. DIA.

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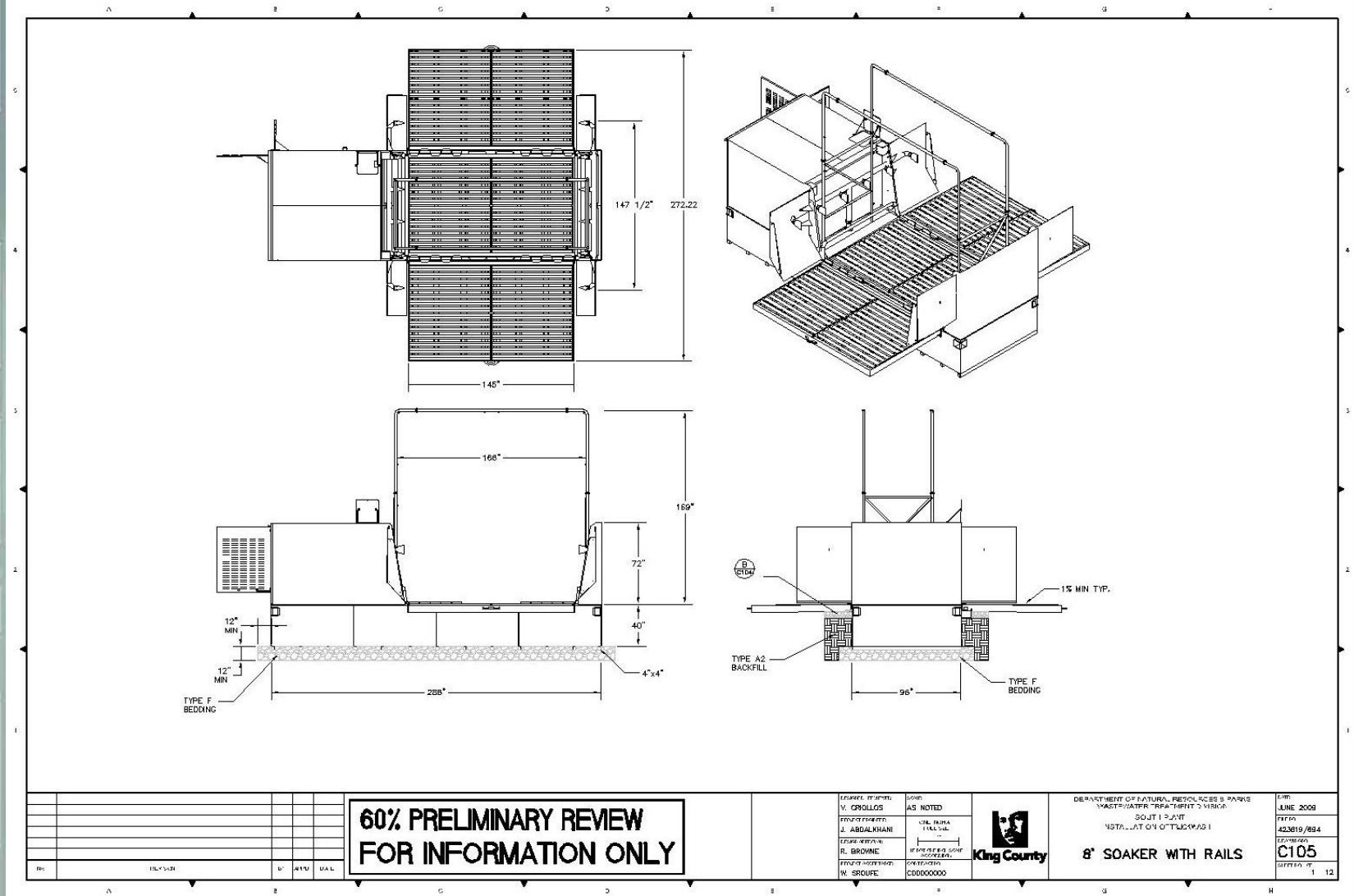
STANDARD TRENCH

CLASS B BACK FILL

12 INCH

12 INCH

STP Truck Wash



STP Truck Wash



Project Name: South Treatment Plant Gas Burner Repairs

Project Number: 423556/692

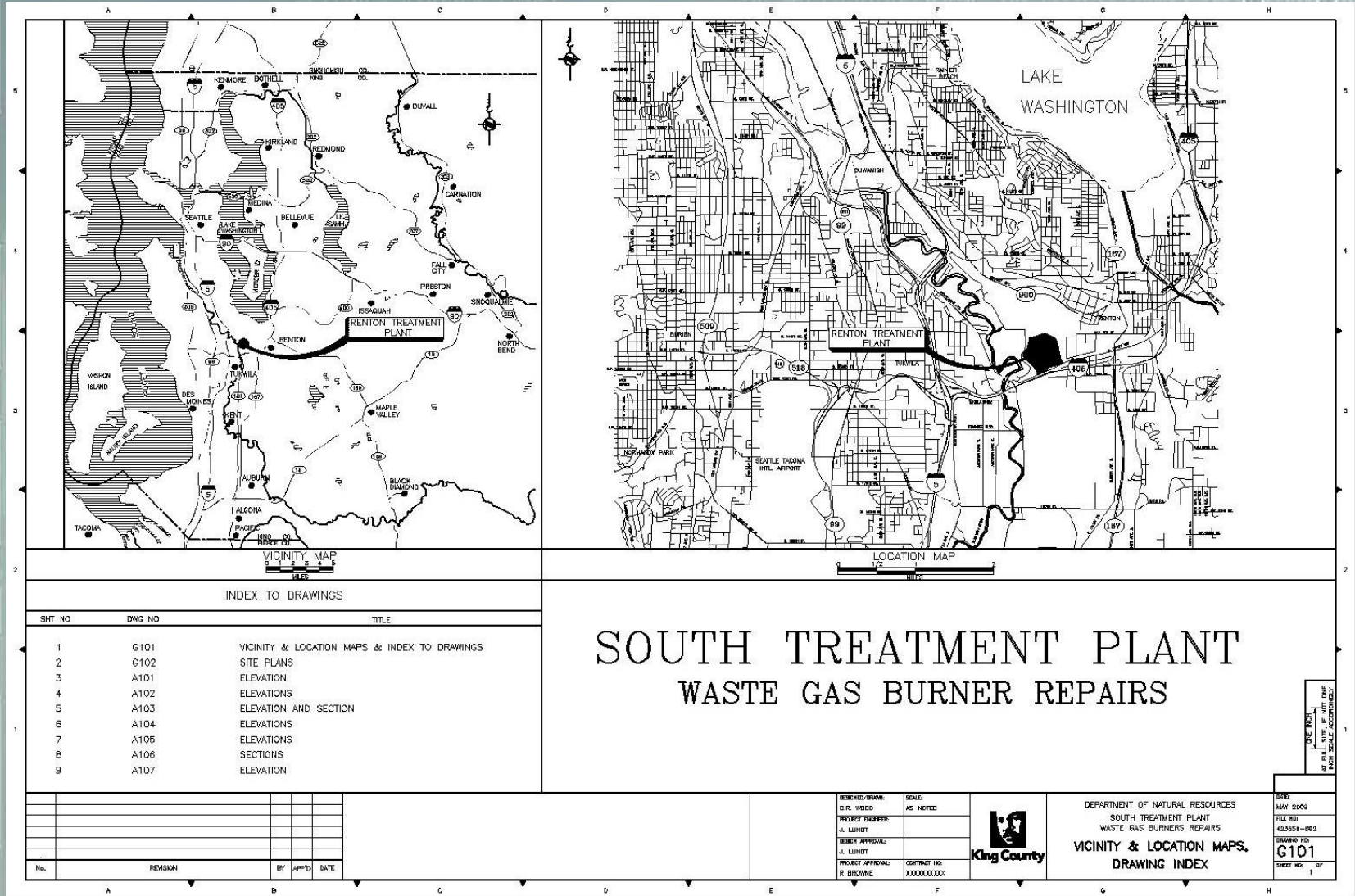
Project Designer: Clay Wood

Project Engineer: Jeff Lundt

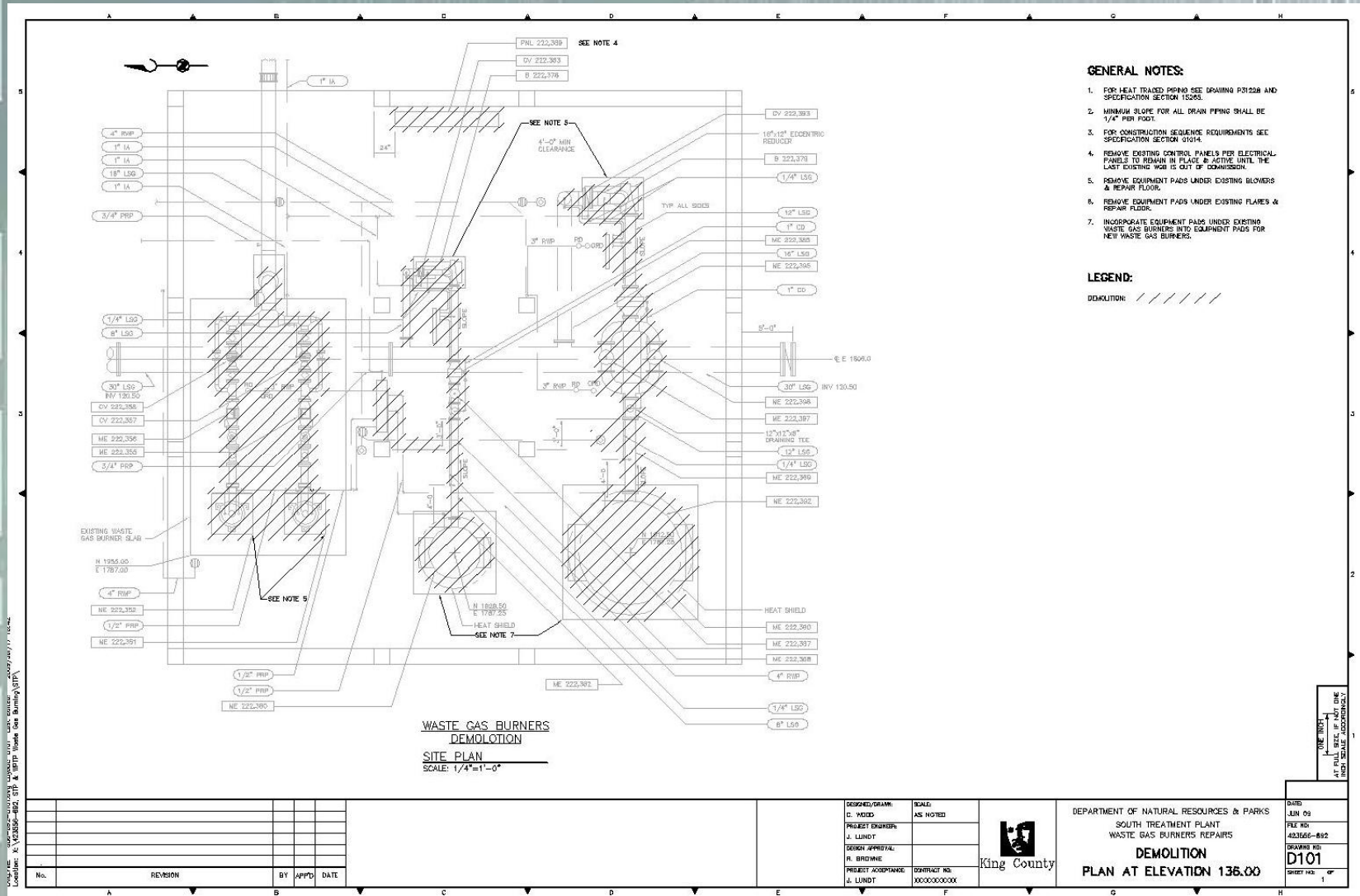
Project Description:

- The original flares are at the end of their life and the two WGB installed more recently continue to have trouble with dampers, meeting temperature, and are poorly sized for the gas produced. New WGB to be installed by the end of next year but most likely by the end of summer 2010.
- Three waste gas burners are proposed to be installed in the 3-bay WGB building in the northwest corner of the South Plant site, just east of the water tower. The proposed new burners come with all elements skid mounted ready to be set into place. The stack is shipped as a separate piece and is set in place on top of the skid when the skid is secure. The stack will need to be lifted over the top of the WGB building walls requiring a crane pick. The stack is relatively light compared to the existing WGB stack with the refractory interior; so placement is not expected to be an issue.

STP Waste Gas Burners



STP Waste Gas Burners



No.	REVISION	BY	APP'D	DATE

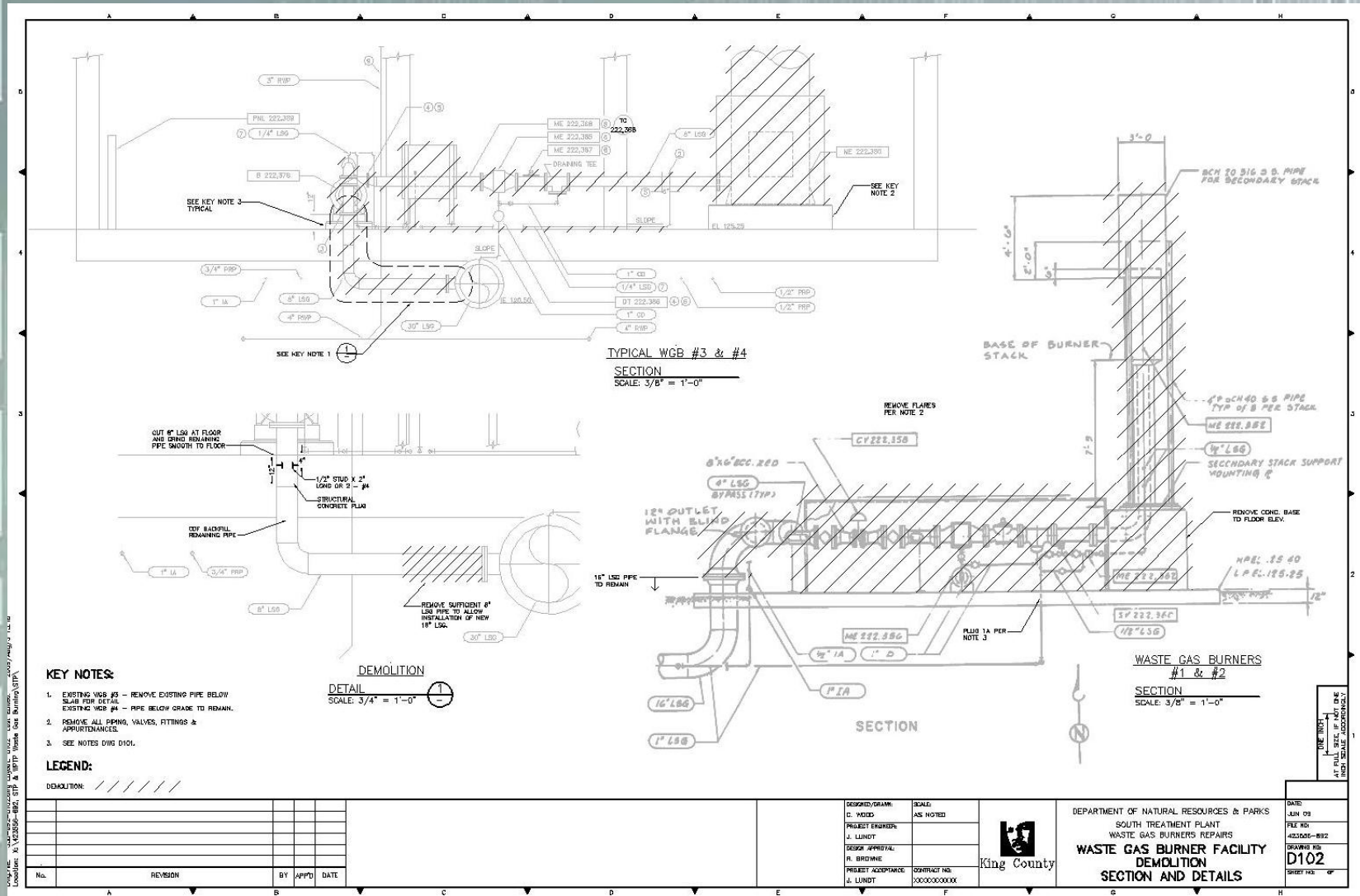
DESIGNED/DRAWN: C. YODD	SCALE: AS NOTED
PROJECT ENGINEER: J. LUNDT	
DESIGN SPECIALIST: R. BROWNE	
PROJECT ACCEPTANCE: J. LUNDT	CONTRACT NO. K000000000



DEPARTMENT OF NATURAL RESOURCES & PARKS
SOUTH TREATMENT PLANT
WASTE GAS BURNERS REPAIRS
DEMOLITION
PLAN AT ELEVATION 138.00

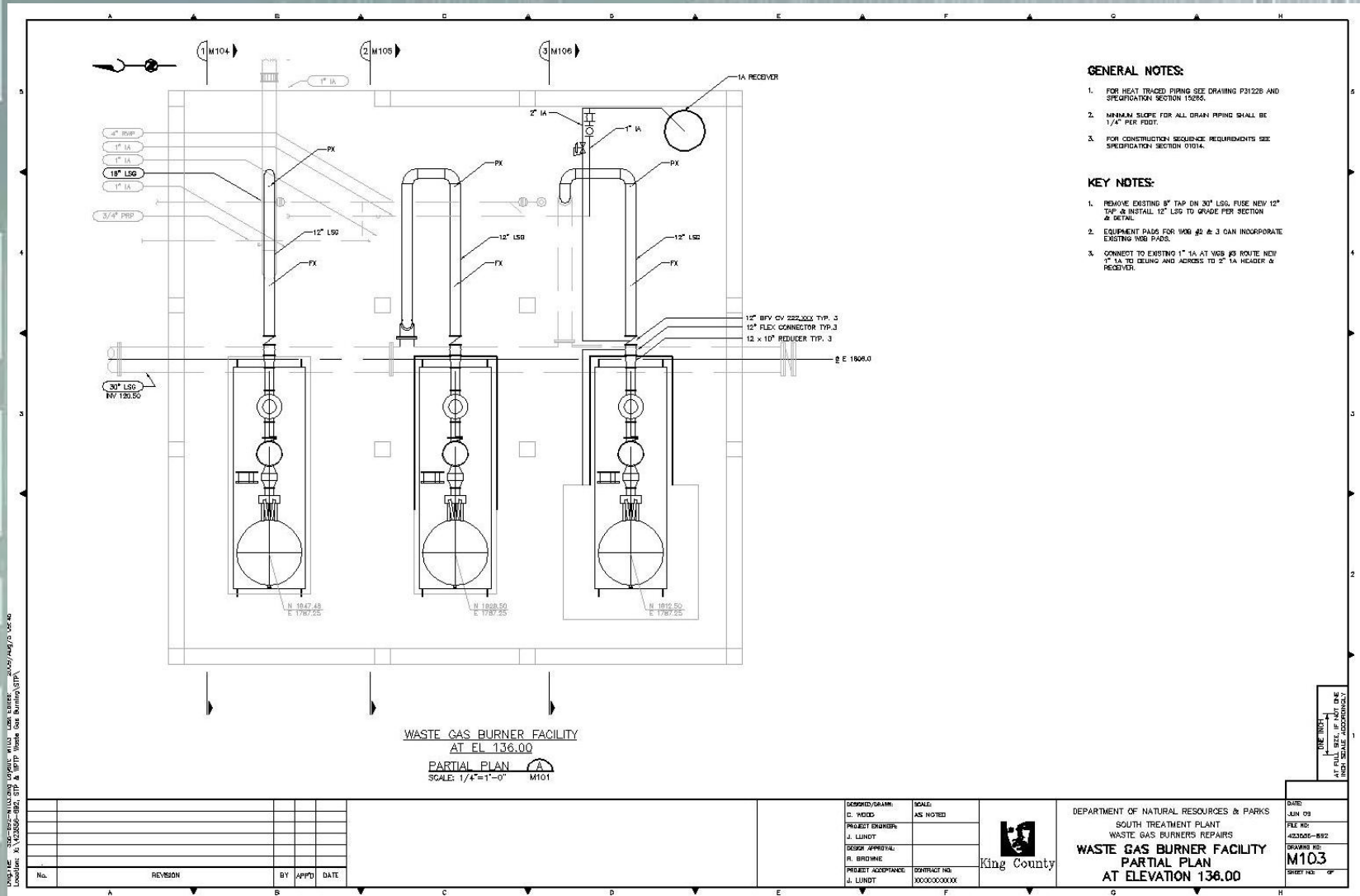
DATE: JUN 09
FILE NO: 403565-492
REVISION TO: D101
SHEET NO. 1 OF 1

STP Waste Gas Burners

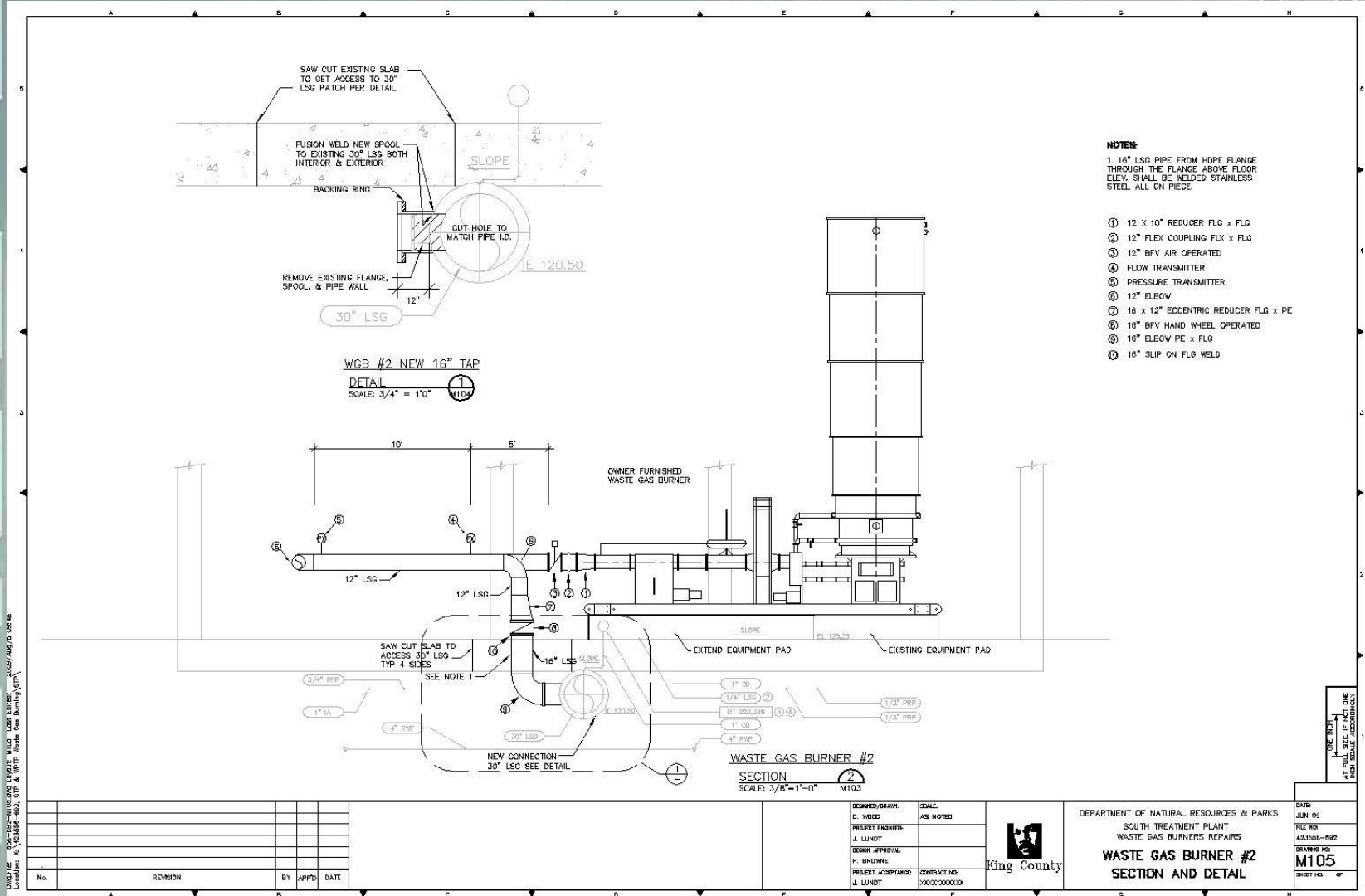


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STP Waste Gas Burners



STP Waste Gas Burners



Project Name: North Creek Forcemain Air Jump Upgrade

Project Number: 423555/728

Project Manager: Will Sroufe

Project Engineer: Mike Tseng

Project Description:

- In early Feb. 2009 there was a break in one of the PVC 90 degree elbows of one of the air jumpers for the dual North Creek force mains. The entire air jumper and associated pipe is PVC, the piping is approximately 3-4 feet below grade. There are six air jumpers, three on each force main which were all constructed similarly. The original air jumper design did not make a provision for a thrust block or any sort of thrust restraint.

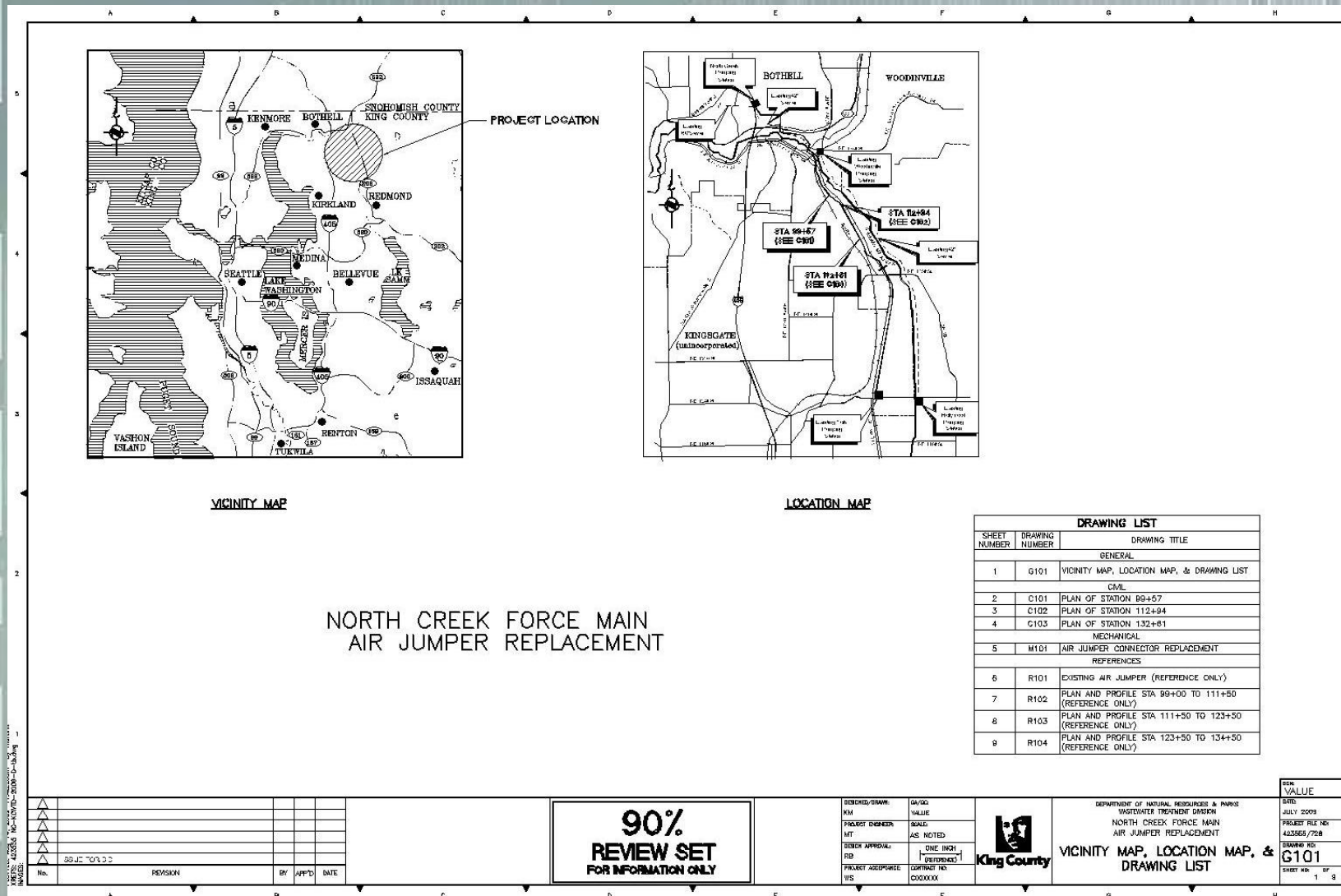
Project Objective:

- The primary objective of this project is to design and construct new air jumpers to replace the existing PVC air jumpers (6) along the North Creek forcemain. This will help to insure that WTD does not have a raw sewage spill due fatigue stress failures of the PVC pipe.



Air Jumpers Repair

Air Jumpers Repair



PLAN
SCALE: 1" = 20'-0"

DETAIL
SCALE: 1" = 4'-0"

LEGEND:
STAGING AREA: [Hatched Pattern]
SILT FENCE: [Line with 'SF']
W20-1 ROAD WORK AHEAD: [Diamond Symbol]
TRAFFIC CONE: [Cone Symbol]

NOTES:
1. LIMIT OF EXCAVATION SHOULD BE CONFINED WITHIN THE BOUNDARY OF THE FABRIC FILTER FENCE AND NOT EXTEND 5 FEET BEYOND THE AIR JUMPER PIPES, AS DIRECTED BY THE PROJECT REPRESENTATIVE IN THE FIELD.
2. CONTRACTOR SHALL VERIFY ACTUAL LOCATION AND DIMENSIONS OF THE AIR JUMPER PIPES IN THE FIELD.
3. IMPLEMENT TRAFFIC CONTROL AND EROSION CONTROL PLANS PRIOR TO CONSTRUCTION.
4. T-1 CABLE LINE MAY BE OVER THE TOP OF EXISTING FORCE MAIN (WEST SIDE); TO BE PROTECTED.
5. OVERHEAD POWER LINES RUN ALONG EAST SIDE OF STREET.
6. CONTRACTOR SHALL COORDINATE WITH THE PROJECT REPRESENTATIVE TO MAKE SURE THE FORCE MAINS ARE SHUT DOWN, DRAINED, AND DEPRESSURIZED PRIOR TO CONSTRUCTION.

90% REVIEW SET FOR INFORMATION ONLY

NO.	REVISION	BY	APP'D	DATE
1	ISSUED FOR CONSTRUCTION			

DESIGNED/DRAWN: KM	QA/QC: VALUE
PROJECT DESIGNER: MT	SCALE: AS NOTED
DRAWN APPROVING: TTB	ONE INCH (REFERENCE)
PROJECT ACCEPTANCE: W/S	CONTRACT NO. C000000

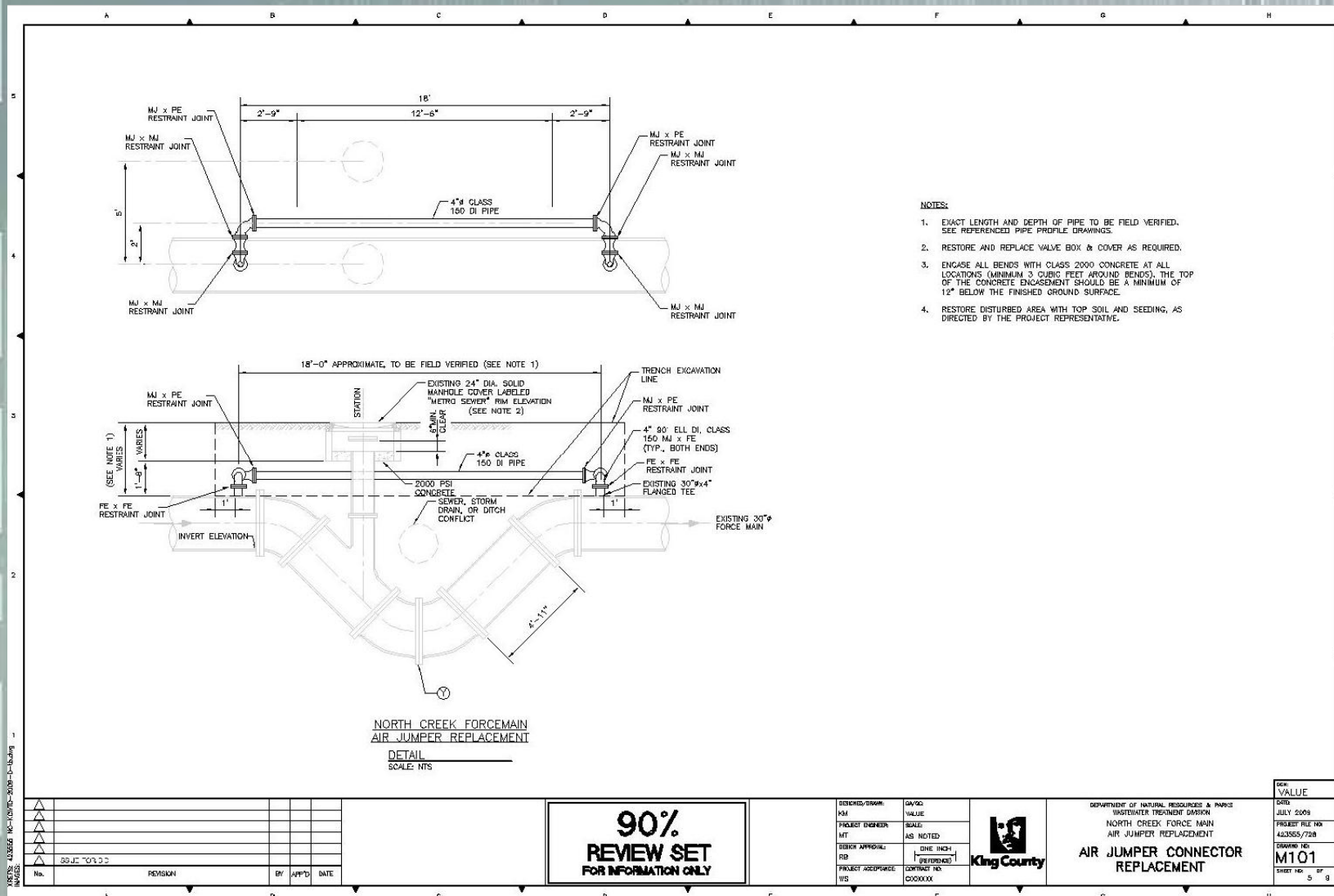
King County

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
NORTH CREEK FORCE MAIN
AIR JUMPER REPLACEMENT

PLAN OF STATION 99+57

DATE: JULY 2009	PROJECT FILE NO: 423565/728
DRAWING NO: C101	SHEET NO: 2 OF 2

Air Jumpers Repair



Project Name: Bothell/Woodinville Interceptor Rehabilitation

Project Number: 423597/300

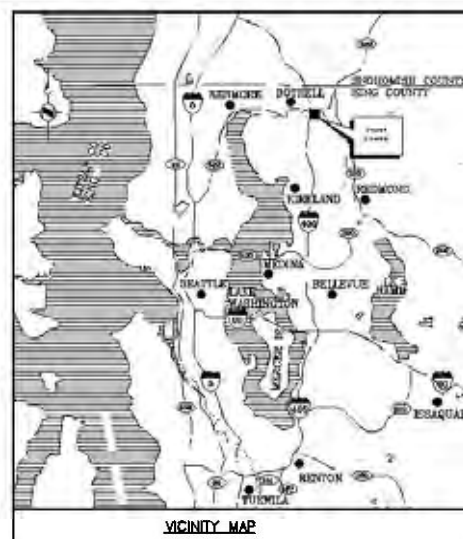
Project Manager: Crystal Fleet

Project Engineer: Sarah White

Project Description:

- This project includes repair of 1090 feet of 36-inch diameter and 400 feet of 42-inch diameter reinforced concrete pipe in a portion of the Bothell-Woodinville Interceptor immediately downstream of the Woodinville PS Discharge Structure. The interceptor parallels the Sammamish River Bike Trail. Corrosion in this line has increased significantly during the last 5 years and rebar is visible throughout much of the section of pipe. This work is scheduled for summer of 2010 to take advantage of dry weather flows and the ability to swap flow from Hollywood to York before Brightwater goes online. The design alternative selected for this repair will be cured-in-place pipe.

Interceptor Rehabilitation



BOTHELL-WOODINVILLE
INTERCEPTOR
PLAN
SCALE: NTS

INDEX OF DRAWINGS		
PAGE NUMBER	SHEET NUMBER	SHEET TITLE
1	C101	LOCATION & VICINITY MAP & DRAWING INDEX
2	C101	AERIAL VIEW AND STAGING AREAS
3	C102	PLAN AND PROFILE
4	C103	M.H. W11-101 TO AD1 SITE PLAN
5	C104	M.H. W11-88 & 97 SITE PLAN
6	C105	M.H. W11-96 & 95 SITE PLAN
7	C106	MANHOLE DETAILS & TABLE
8	C107	MANHOLE DETAILS W11-99 & 97
9	C108	MANHOLE DETAILS
10	C109	DISCHARGE STRUCTURE DETAILS
11	C110	TRAFFIC CONTROL PLAN

CALL 2 DAYS
BEFORE YOU DIG
1-800-424-5555

BOTHELL - WOODINVILLE INTERCEPTOR REHABILITATION

CONTRACT No. C00000000

No.	REVISION	BY	APP'D	DATE

**60%
REVIEW SET
FOR INFORMATION ONLY**

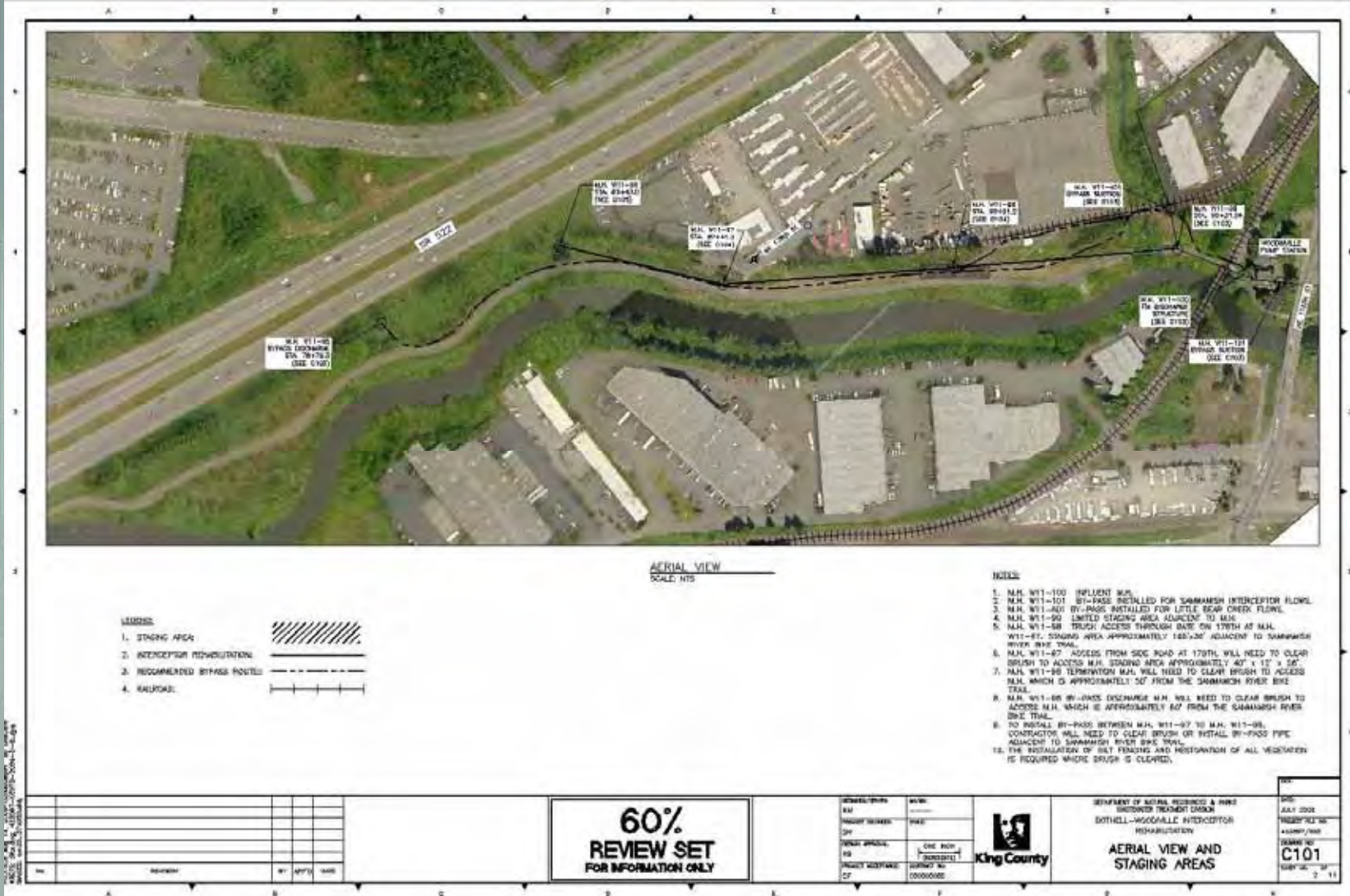
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DESIGN APPROVAL: TD	ONE INCH EQUIVALENT
PROJECT ACCEPTANCE: CS	DRAWING NO. C00000000



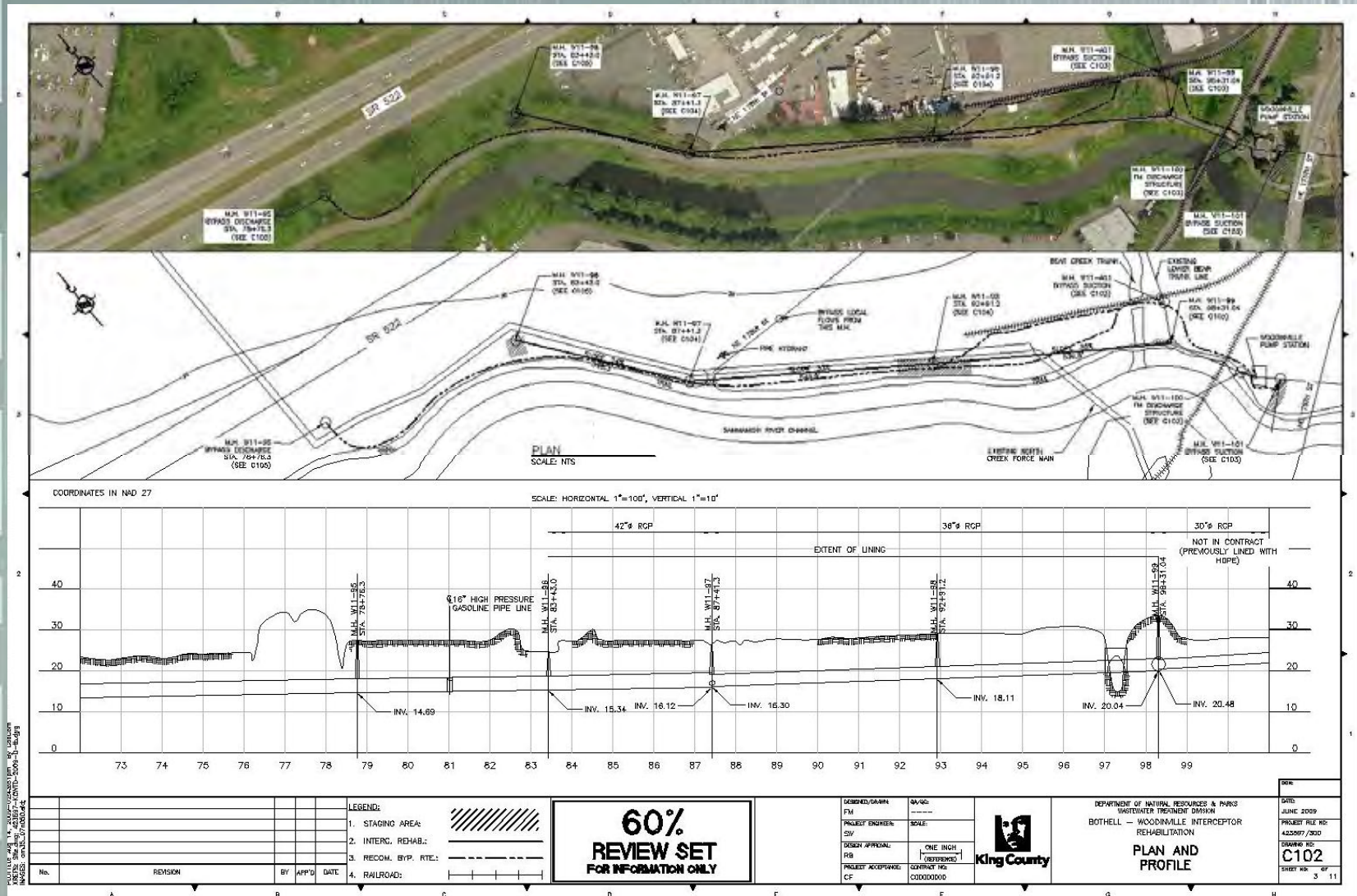
DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
BOTHELL - WOODINVILLE INTERCEPTOR
REHABILITATION
**LOCATION & VICINITY
MAP & DRAWING INDEX**

DATE: JULY 2009
PROJECT FILE NO: 423567/300
DRAWING NO: G101
SHEET NO. 1 OF 11

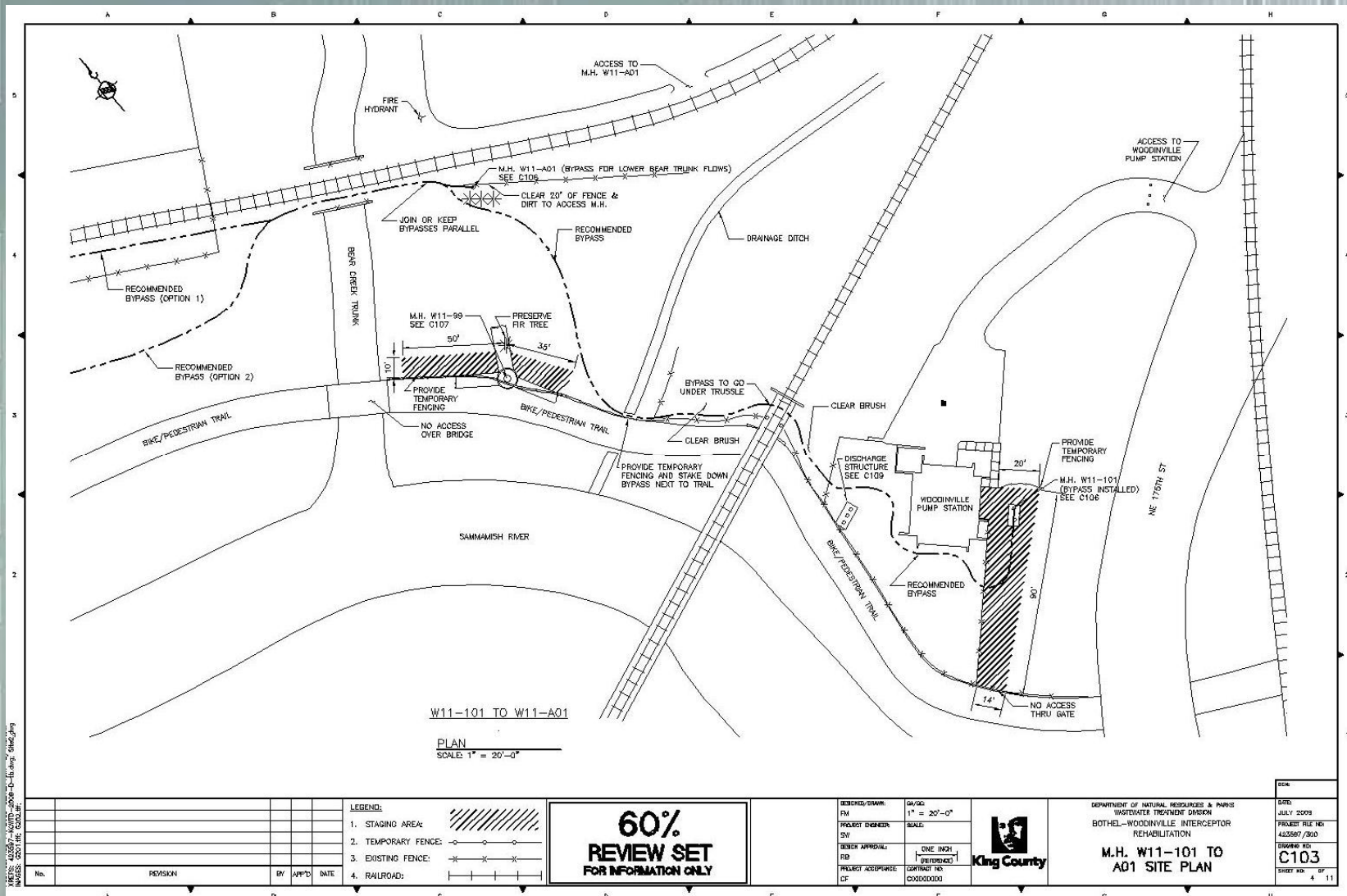
Interceptor Rehabilitation



Interceptor Rehabilitation



Interceptor Rehabilitation



PLAN
SCALE: 1" = 30'-0"

W11-98 & W11-97

LEGEND:

1. STAGING AREA: [Hatched Pattern]
2. TEMPORARY FENCE: [Line with 'x' markers]
3. EXISTING FENCE: [Line with 'o' markers]
4. RAILROAD: [Line with cross-ticks]

DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
BOTHELL - WOODINVILLE INTERCEPTOR
REHABILITATION
M.H. W11-98
& 97 SITE PLAN

DATE: JULY 2009
PROJECT FILE NO: 433587/200
DRAWING NO: C104
SHEET NO. 5 OF 11

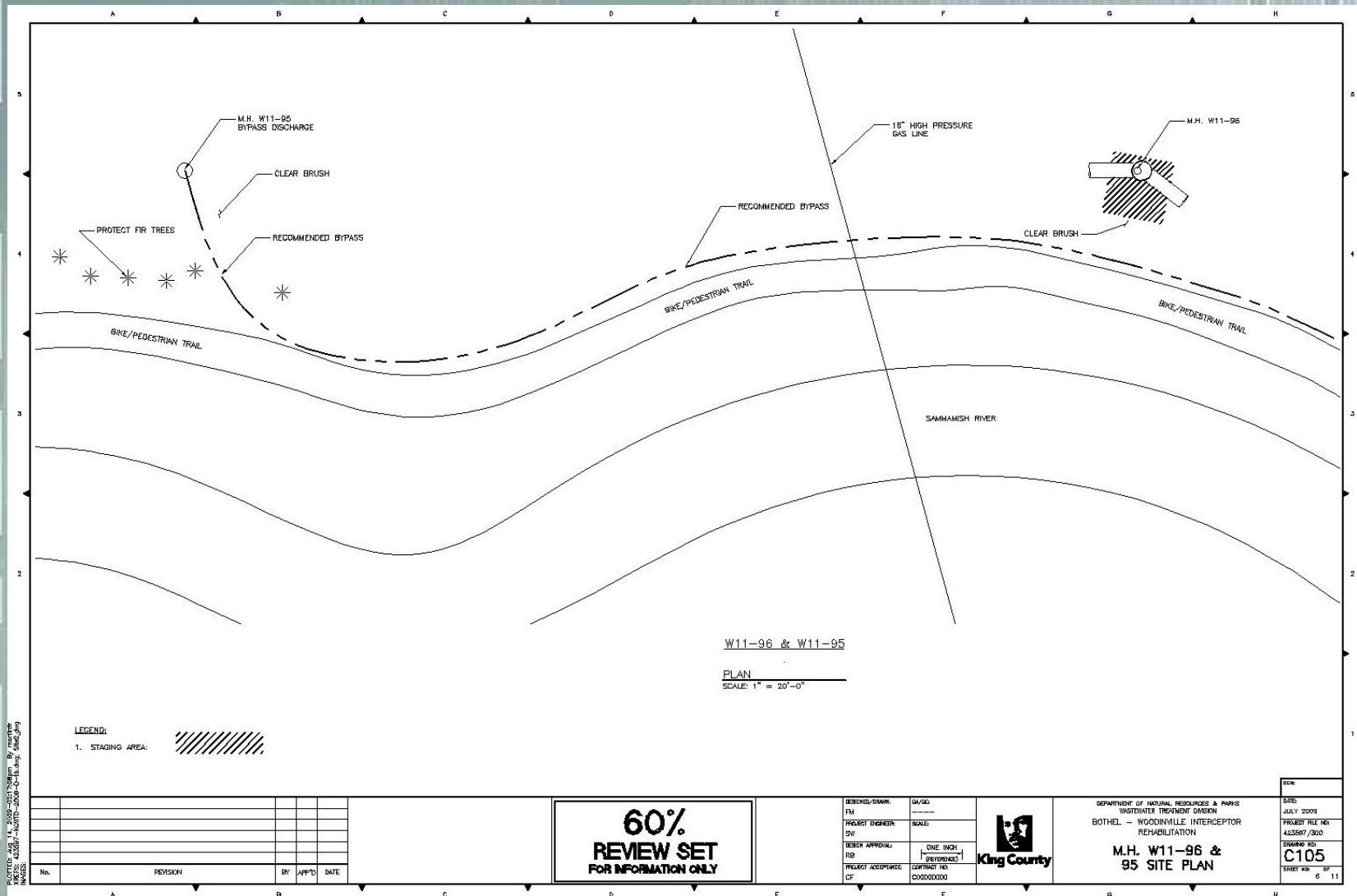
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REVIEW SET
FOR INFORMATION ONLY

DESIGNED/SW: FM
PROJECT ENGINEER: SW
DESIGN APPROVAL: RD
PROJECT ACCEPTANCE: CF

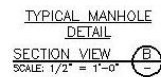
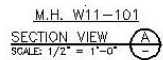
DATE: 04/10/09
SCALE: ONE INCH = FIFTY FEET
CITY OF KING COUNTY

The site plan shows a staging area (hatched) near manhole W11-97, with a ramp or bury bypass for vehicle access. It includes a fire hydrant, NE 17th St, and a railroad. A pedestrian/bike trail runs along the Sammamish River. Two recommended bypass options are shown for the railroad. Manhole W11-98 is located near the trail, with clear brush and temporary fencing indicated. Dimensions of 185' and 36' are noted near the bypass options.

Interceptor Rehabilitation



PLOTTED: Aug 14, 2009-02:16:34 pm By: martinr
XREFS: 432697-KCWD-2008-D-1b.dwg
IMAGES: 2008.HF.



MANHOLE INFORMATION	
MANHOLE NUMBER	X (DEPTH)
W11-101	23'-0"
W11-99	11'-0"
W11-A01	11'-6"
W11-98	11'-8"
LOCAL M.H. 178TH ST	6'-6"
W11-87	12'-10"
W11-96	12'-8"
W11-85	14'-0"

1. TYPICAL MANHOLES SPECIFY MANHOLES W11-A01, W11-98, W11-97, W11-96 & W11-95 ONLY.
2. ALL DEPTHS WERE FIELD MEASURED AND SHOULD BE CONSIDERED APPROXIMATE.

No.	REVISION	BY	APP'D	DATE

**60%
REVIEW SET
FOR INFORMATION ONLY**

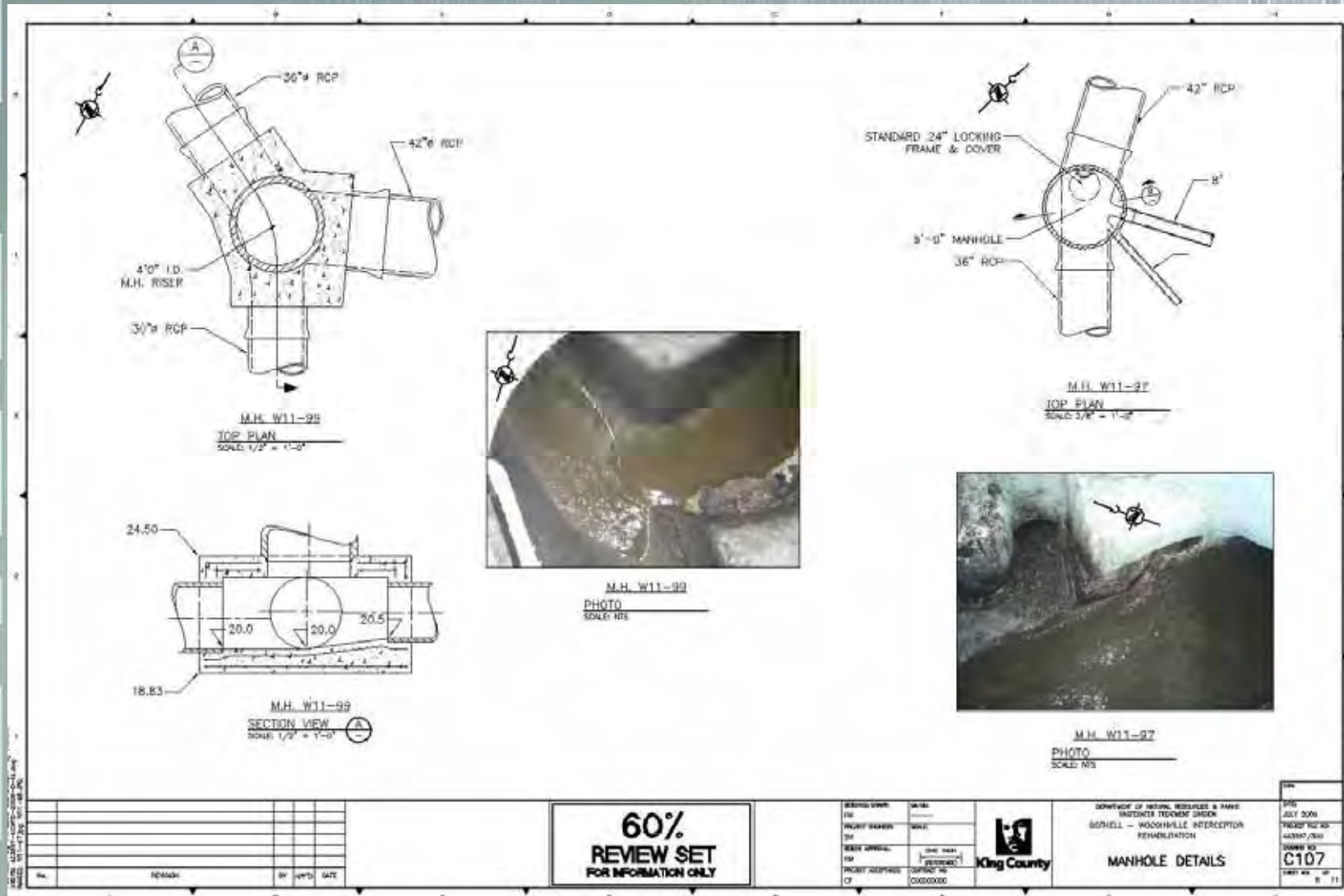
DESIGNED/DRAWN: FM	DA/GO: -----
PROJECT ENGINEER: SW	SCALE:
DESIGN APPROVAL: RB	
PROJECT ACCEPTANCE: CF	CONTRACT NO. C00000000



DEPARTMENT OF NATURAL RESOURCES & PARKS
WASTEWATER TREATMENT DIVISION
BOTHELL - WOODINVILLE INTERCEPTOR
REHABILITATION
**MANHOLE DETAILS
& TABLE**

DATE:	JULY 2009
PROJECT FILE NO:	423567 /300
DRAWING NO:	C106
SHEET NO:	7 OF 11

Interceptor Rehabilitation



[illegible]

What I learned

- A LOT!
- Technical Skills
 - Sheet Set Manager
 - X-Refs
 - Blocks
 - Attributes
 - Line types
 - Drafting Standards
- The process of projects and communication.
- How to coordinate with project team members.
- How to create Civil and Mechanical drawings.



Acknowledgements

THANK YOU

Grazie

Köszönettel

Di'ky

Hvala

Teşekkürler

• A special thanks to...

- Sarah White
- Bob Isaac
- Liz Gaskill
- Robert Ward
- Velma Criollos
- Terry Browne
- Geoff Hosea
- Clay Wood
- Mike Clark
- Floyd Brown
- Mike Tseng
- Jeff Lundt
- John Abdalkani
- Crystal Fleet
- Will Sroufe

Thank You!

Merci

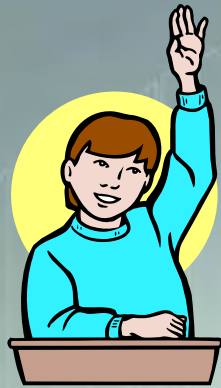
Ευχαριστώ

Obrigado!

Gracias

Bedankt

THE END



• Any Questions???

